Part I
APPENDIX C. SUPPLEMENTAL CHARPY V-NOTCH TOUGHNESS TESTING FOR COMBINATIONS OF FILLER METALS

Scope

This appendix supplements Part I, Section 3.3.2 and specifies provisions for testing to confirm adequate Charpy V-Notch (CVN) toughness of weldments when the Flux-Cored Arc Welding – Self-Shielded welding process is combined with any other welding process, including Flux-Cored Arc Welding – Gas Shielded, and the weld is subject to CVN toughness requirements.

Test Specimens

One test plate as described below shall be used. Five CVN tests shall be made from the test plate. The sequence of weld layers from the different processes shall be the same as that to be employed in production. Approximately one-third the thickness of the test joint shall be welded with the welding material to be used first, or the existing welding material. The balance of the joint shall be welded with the welding material to be used following the first.

A single test plate, which may be of any AISC-listed structural grade, shall be used. The test plate shall be ¾ inches thick with a 5/8-inch root opening and 20° included groove angle. The test plate and specimens shall be as shown in Figure 5.1 in AWS D1.5-95, except that only an adequate length needed to provide the CVN test specimens, but not less than six inches, is necessary.

All test specimens shall be taken from near the centerline of the weld at the mid-thickness location, in order to minimize base metal dilution effects. CVN specimens shall be prepared in accordance with AWS B4.0-92, *Standard Methods for Mechanical Testing of Welds,* Section A3.

Acceptance Criteria

The lowest and highest values obtained for the five specimens shall be disregarded. Two of the remaining three values shall equal, or exceed, the specified toughness of 40 ft-lbf energy level at the testing temperature. One of the three may be lower, but not lower than 30 ft-lbf, and the average of the three shall not be less than the required 40 ft-lbf energy level.